

USER'S OPERATION MANUAL

VUT 300 EH EC ECO
VUT 400 EH EC ECO
VUT 900 EH EC ECO



Air handling unit with heat recovery

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INTRODUCTION

The present user's operation manual contains technical description, data sheet, installation and mounting guidelines for the air handling unit with heat recovery VUT EH EC ECO, VENTS series (hereinafter referred as the unit).

USE

The unit is designed to save heat energy by means of heat recovery and is one of the energy saving components used in buildings and premises. The air handling unit is a component unit and is not designed for independent operation.

The unit is designed to provide permanent controllable air exchange by mechanical ventilation in houses, offices, hotels, cafés, meeting halls and other mechanically ventilated premises as well as utilization of extract air heat energy to warm up supply purified air.

Transported medium must not contain any flammable or explosive mixtures, evaporation of chemicals, coarse dust, soot and oil particles, sticky substances, fibrous materials, pathogens or any other harmful substances.



THE UNIT IS NOT DESIGNED TO BE USED BY CHILDREN, PHYSICALLY OR MENTALLY DISABLED PERSONS, PERSONS WITH SENSORY DISORDER, PERSONS WITH NO APPROPRIATE EXPERIENCE OR EXPERTISE.

THE UNIT CAN BE OPERATED BY QUALIFIED EXPERTS AFTER APPROPRIATE INSTRUCTION ABOUT ITS USE AND OPERATION.

INSTALL THE UNIT TO BE OUT OF REACH OF CHILDREN.

DELIVERY SET

- Unit VUT EH EC ECO — 1 item;
- User's operation manual — 1 item;
- Packing box — 1 item.

STRUCTURAL DESIGNATION KEY

VUT 300 E H EC ECO					
		Motor type			
		EC - electronically commutated			
		Spigot orientation			
		H - horizontal			
		Heater type			
		E - electric heater			
		Air capacity [m ³ /h]			
		Unit type			
		VUT (HRV) - heat recovery ventilation			

TECHNICAL DATA

The unit is designed for indoor application with the ambient temperature ranging from +1°C up to +40°C and relative humidity up to 80%.

Ingress Protection (IP) rating from solid objects and liquids:

- IP 44 for the unit motors;
- IP 22 for the assembled unit connected to the air ducts.

The unit overall and connecting dimensions, external view, technical data are shown in fig. 1 and in tables 1 and 2.

The unit design is regularly being improved, so some models can slightly differ from those ones described in this manual.

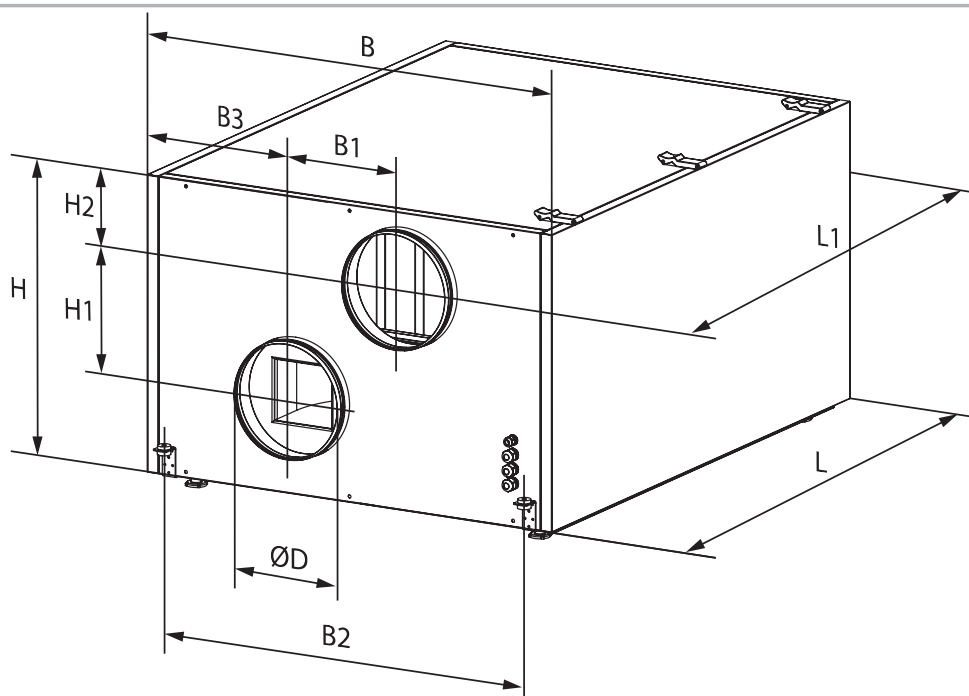


Fig. 1. Unit overall and connecting dimensions

Table 1

Type	Ø D	B	B1	B2	B3	H	H1	H2	L	L1
VUT 300 EH EC ECO	159	566	125	391	186	475	202	118	1081	1187
VUT 400 EH EC ECO	199	687	255	588	220	514	235	139	1092	1174
VUT 900 EH EC ECO	249	940	250	837	345	620	262	156	1200	1282

Table 2

Type	VUT 300 EH EC ECO	VUT 400 EH EC ECO	VUT 900 EH EC ECO
Voltage, 50 Hz [V]	1 ~ 230		
Max. fan power [W]	138	306	340
Max. current consumption (without heater current load [A])	0.9	2	2.2
Electric heater power [kW]	3.0	3.0	3.0
Electric heater current [A]	13.0	13.0	13.0
Total unit power [kW]	3.14	3.31	3.34
Total unit current [A]	13.9	15.0	15.2
Max. air capacity [m³/h]	300	450	942
Rotation speed [min ⁻¹]	up to 1380	up to 2600	up to 1740
Noise level, 3 m [dB(A)]	24-45	28-47	28-47
Max. transporting air temperature [°C]	from -25 up to +60 °C		
Casing material	Aluzinc		
Insulation	25 mm mineral wool		
Filter:	extract	G4	
	supply	G4/F7(EU7)	
Connected duct diameter [mm]	Ø 160	Ø 200	Ø 250
Weight [kg]	42	47	80
Heat recovery efficiency	up to 98%		
Heat exchanger type	Counter-flow		
Heat exchanger material	Polystyrene		

SAFETY PRECAUTIONS

While operating and mounting the unit consider the requirements of the present operation manual as well as general requirements of all applicable local and national building and electrical codes and standards.

The unit must be grounded!

Before connecting the unit to power mains make sure that the unit is free of any visible damages or any other foreign objects inside the casing that can damage the impeller blades. Otherwise please contact a service center.

**WARNING!**

DISCONNECT THE UNIT FROM POWER SUPPLY PRIOR TO ANY MOUNTING, SERVICING, CONNECTION OR REPAIR OPERATIONS WITH THE UNIT.

**DO NOT!**

- **DO NOT OPERATE THE UNIT BEYOND THE SPECIFIED TEMPERATURE RANGE OR IN AN AGGRESSIVE AND EXPLOSIVE MEDIUM!**
- **DO NOT CONNECT CLOTHES DRYERS OR SIMILAR EQUIPMENT TO THE VENTILATION SYSTEM!**
- **DO NOT OPERATE THE UNIT IN THE AIR AND DUST MIXTURE MEDIUM!**

DESIGN AND OPERATING LOGIC

The unit has the following operating logic (fig. 2). Warm stale extract air from the room flows through the air ducts to the unit, is purified in the extract filter and is supplied to the heat exchanger and exhausted outside by exhaust fan. Clean cold air from outside is moved by supply fans to the unit where from it is directed to the supply filter. Then cleaned air flows through the heat exchanger and is moved by the supply fan to the room along air ducts. Thermal energy of warm extract air is transferred to clean intake fresh air from outside and warms it up. The air flows are fully separated. Heat recovery minimizes thermal energy losses, energy demand and operating costs for climatization accordingly.

The unit is equipped with an electric heater up to 3 kW for supply air heating.

The unit design and operating logic are shown in fig. 2.

The basic unit modification includes:

- Two impellers - extract and supply one;
- Counter-flow heat exchanger;
- Two filters: extract filter and supply filter. Both filters have G4 filter class;
- Drain pan;
- Drain pipe;
- Electric heater to warm supply air.

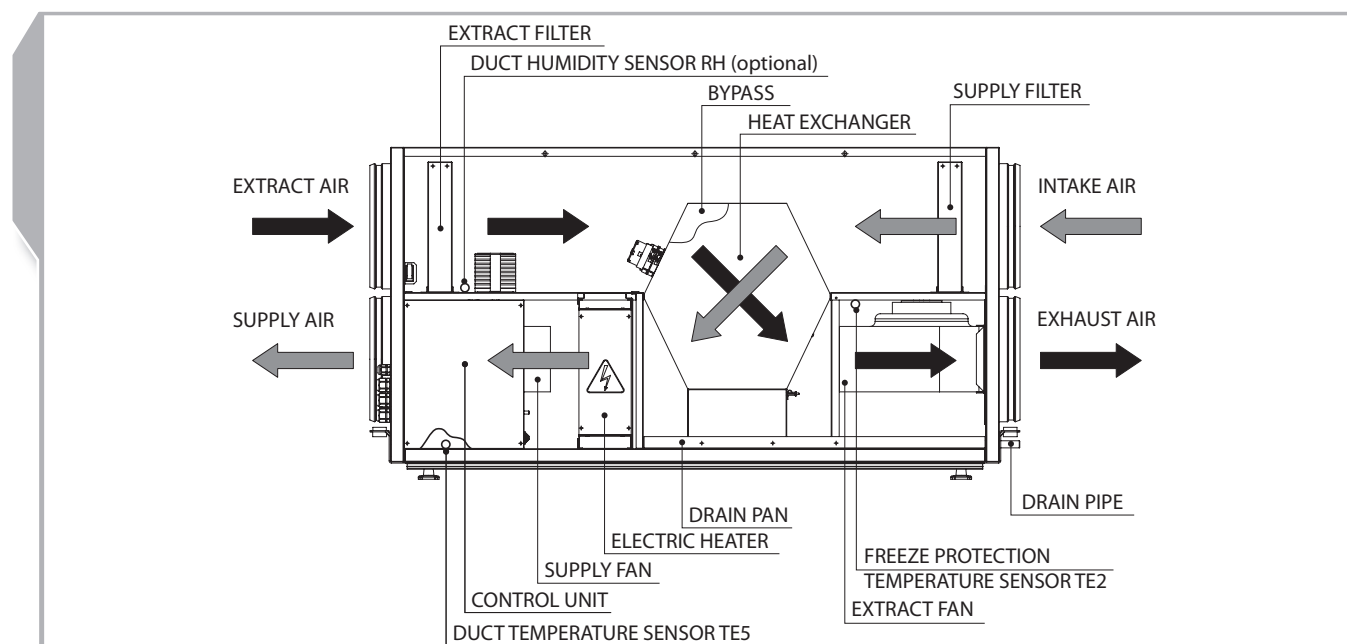


Fig. 2. Unit design and operating logic

MOUNTING AND SET-UP

Mount the unit to provide enough access for maintenance or repair operations.

The unit may be suspended to the ceiling on the threaded rod that is fixed inside the dowel or may be rigidly fixed on a level surface (fig. 3).

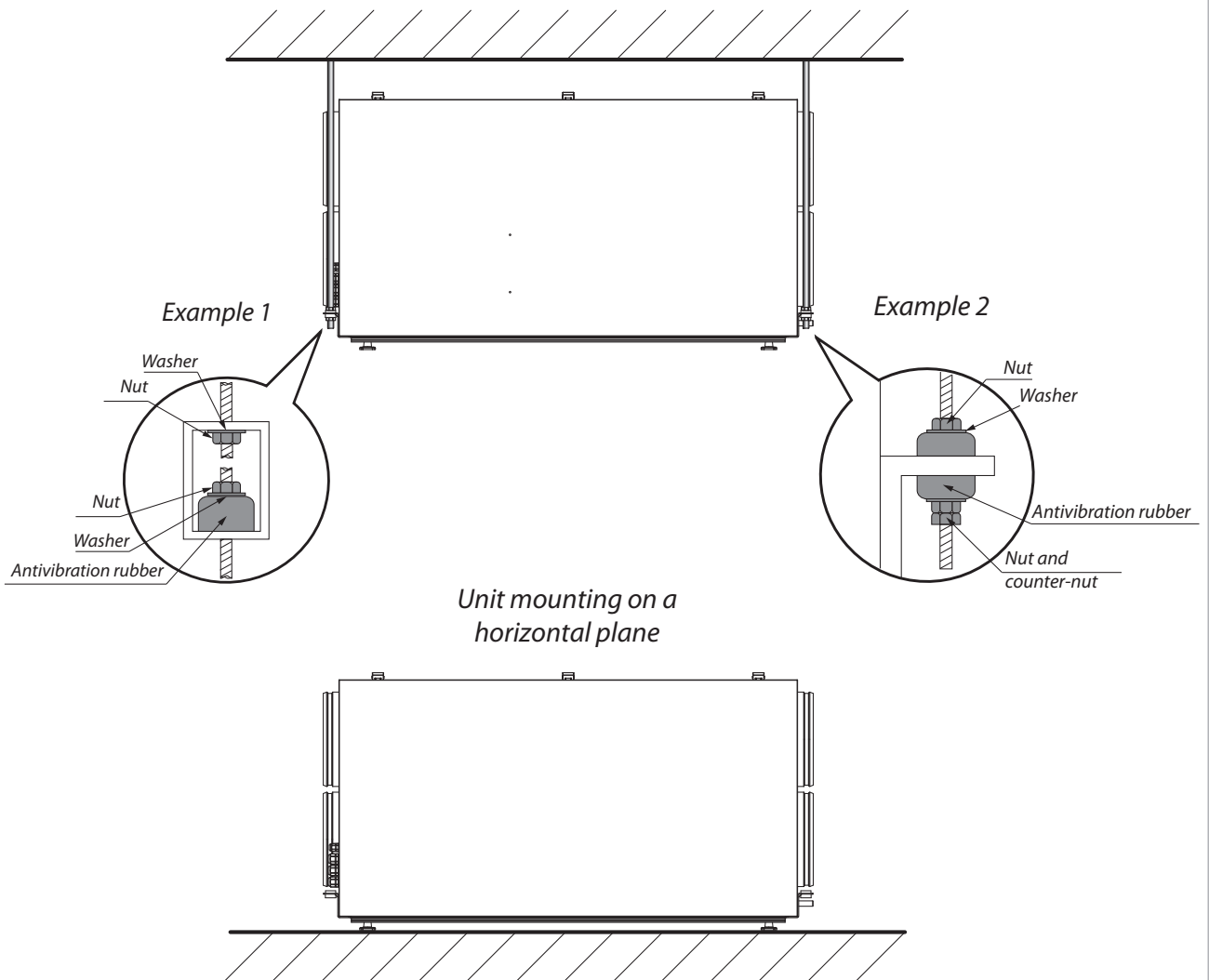


Fig. 3. Unit mounting

To attain the best performance of the unit while mounting connect a straight 1 m duct section on both sides of the unit.

The unit must be equipped with a grille or with another protecting device with mesh width not below 12.5 mm to prevent free access to the unit fans.

Safety measures:

Mount the unit on a rigid and stable structure.

Use bolts to suspend the unit to the ceiling. Make sure that the installation construction has sufficient load capacity to carry the unit weight. Otherwise reinforce an installation place by beams, etc. After that fix the suspension bolts. If the construction strength or surface is not rigid enough it can resonate with the unit and create abnormal noise.

While mounting the unit provide enough service space and an access door in the ceiling for inspection and maintenance of the filters, heat exchanger and fans. One access door is required for each unit. For more details, refer to the outline drawing, fig. 1.

Make sure that the ambient conditions match the unit operation requirements before starting any installation works.

If the fastening bolts used for the unit mounting are too short, the unit may generate abnormal noise and resonate with the ceiling.

Use longer bolts with to prevent resonance.

If the connection point to the spiral seam duct is supposed to be the source of the abnormal noise, install a flexible air duct instead of the flexible one. For the better effect you may use anti-vibration connectors.

CONDENSATE DRAINAGE

Connect the condensate drain pipes, U-trap (not included into delivery set) and the drainage system with metal, plastic or rubber tubes. The tubes must be sloped down by min. 3°. Before starting the unit fill the system with water and check that U-trap is always filled with water. Make sure that the water drainage is correct. Wrong connection to drainage system may result in condensate accumulation and outflow to the premise.

The condensate drainage system is designed for operation at the ambient temperature above 0 °C. If the ambient temperature is below 0 °C, the condensate drainage system must be thermally insulated and pre-heated.



**DO NOT CONNECT SEVERAL DRAIN PIPES FROM SEVERAL AIR HANDLING UNITS TO ONE U-TRAP!
DIRECT CONDENSATE OUTSIDE WITHOUT CONNECTION TO DRAIN SYSTEM IS NOT ALLOWED!**

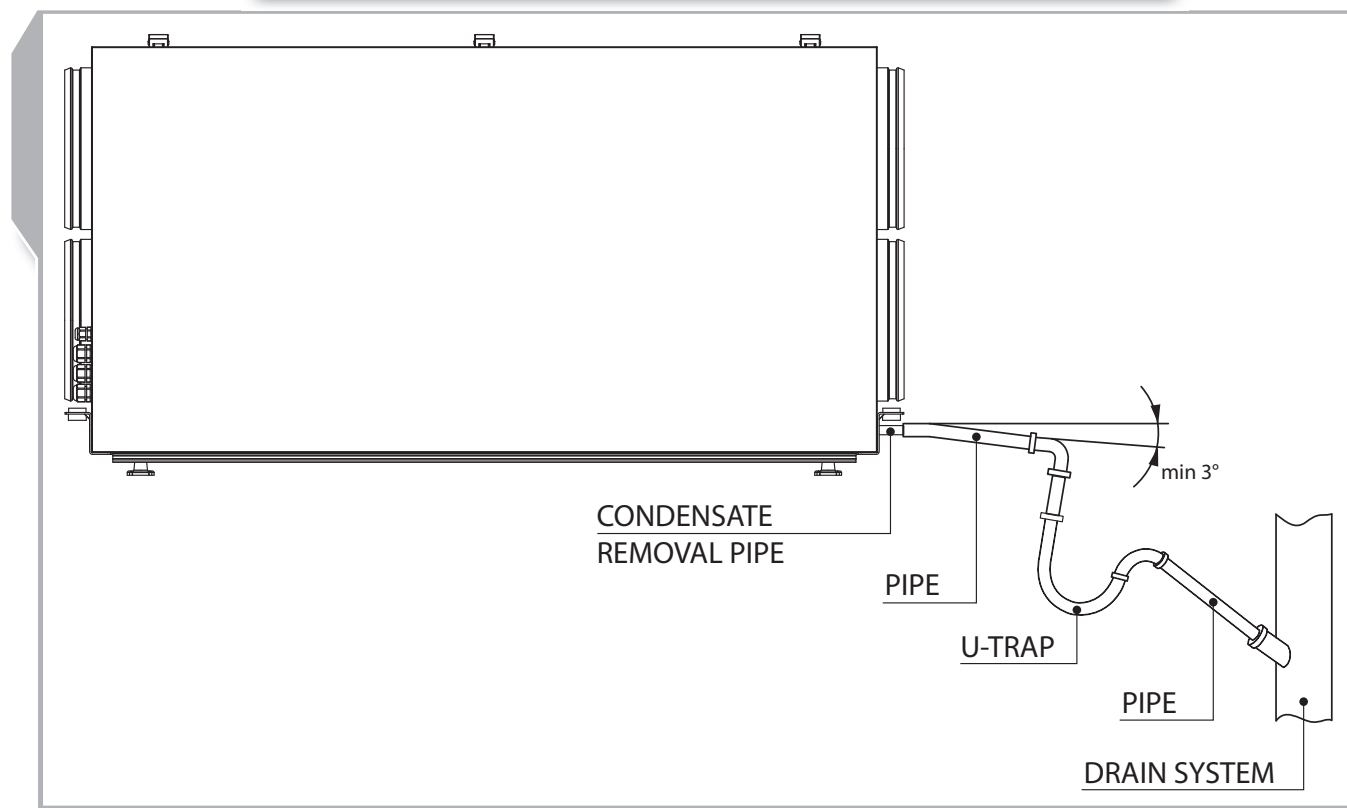


Fig. 4. Condensate drainage



UNIT CONTROL

The unit is controlled from a remote controller with a sensor display (fig. 5).



Fig. 5. Remote controller

1. Main menu.

Main menu displays date, current humidity, time, temperature and air flow as well as basic menu functions (fig. 6).



Fig. 6. Main menu

MENU - Enter user menu (refer point 5, page 10).

AUTO - Scheduled unit turning on/off.

TEMPERATURE - displaying current indoor air temperature. Press this button to enter the air setting menu (refer point 4, page 9).

ON/OFF - TURNING STANDBY MENU ON/OFF.

TIMER - turning timer on/off.

AIR FLOW - displaying current fan speed. Press this button to open the fan speed setting menu (refer to item 3, page 9).

2. Turning the standby mode on/off.



Fig. 7. Turning Standby mode on/off.

- Press the button On  / Off  in the main menu of the control panel to activate / deactivate the standby mode. The light indicator turns from green to red during turning off, see fig. 7.

3. Fan speed selection

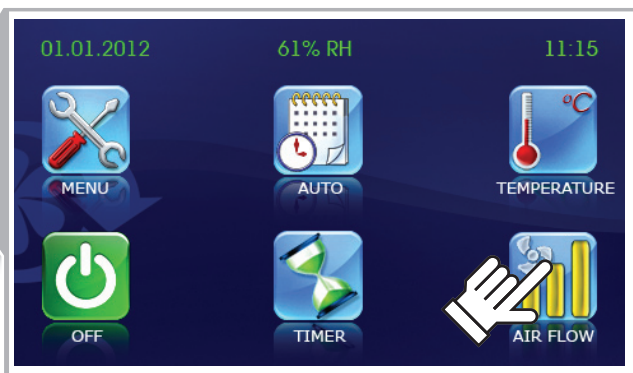


Fig. 8. Fan speed switching

To change current fan speed:

- press the button **AIR FLOW**  (fig. 8);
- The unit has four speed modes:



- low speed;



- medium speed;



- high speed;



- humidity control mode. This is a special mode to adjust

the fan speed depending on set humidity. Humidity is set from the engineering menu (refer item 14, page 13). In case of **AUTO** and **TIMER** mode activation the unit switches to the selected mode operation as these operation modes have priority settings.

- In case of **AUTO** or **TIMER** mode activation the actual air flow is displayed no matter the air flow set with the button **AIR FLOW**.



Fig. 9. Air flow setup

- set the required speed with the buttons  and  (fig. 9);

- press the button **ENTER**  (fig. 9);
- to return to main menu without entering changes press

the button **EXIT** .

4. Temperature setting.

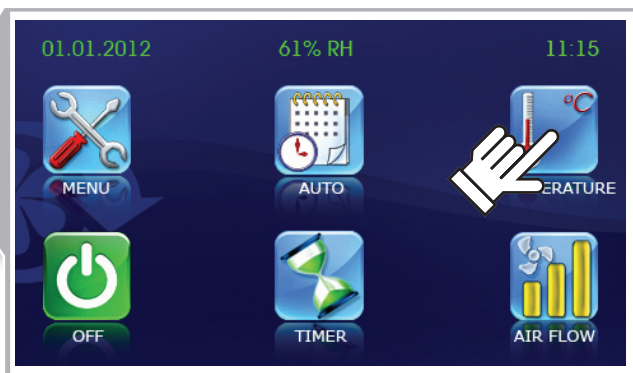


Fig. 10. Regulated temperature

To change the regulated temperature (desired temperature):

- Press the button **TEMPERATURE**  (fig. 10).
- Select the type of the regulated temperature with

the button **DUCT**  for the duct air temperature or

ROOM  for the indoor air temperature (fig. 11).



Fig. 11. Regulated temperature changing

- set the required regulated temperature with the buttons  and  (fig. 11);

- then press the button **ENTER** ;
- to return to main menu without entering changes press

the button **EXIT** .

5. User menu.



To enter the user menu press the button **MENU**  in the main control menu (fig. 12).



The user menu contains all the basic menus and functions for adjustment of various unit parameters (fig. 13):

ENG. MENU - entrance to engineering menu. Entrance is password-protected.

AUTO ADJUST. - scheduled operation mode adjustment

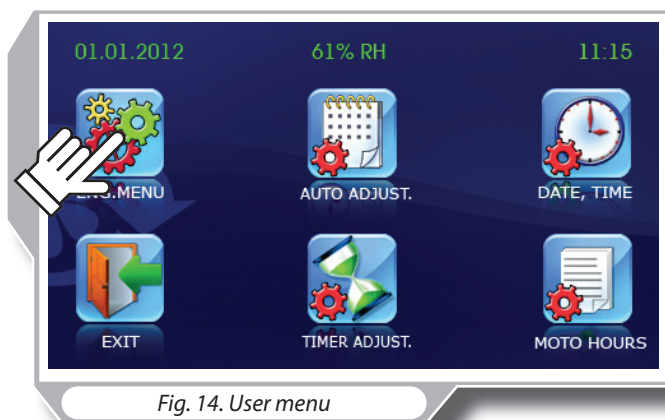
DATE, TIME - date and time setting.

TIMER ADJUST. - time and timer-based operation speed setting.

MOTO HOURS - time setting to replace filter.

EXIT - return to main menu.

6. Engineering menu



To get to the engineering menu, press the button **ENG. MENU**



in the remote controller user menu (fig. 14).



■ Then enter the password to enter the engineering menu (the default password is 1111).

■ Press OK (fig. 15).

■ To correct the password press the button **RESET** . To clear the field **ENTER PASSWORD**, press the button **RESET**.

■ Press the button **EXIT**  to return to the user menu.

■ If you have changed the password and do not remember the new password (refer item 11, Password change, page 13),

press and hold the button **RESET**  till a long signal (20 clicks, approximately 20 seconds). The default password (1111) is renewed.

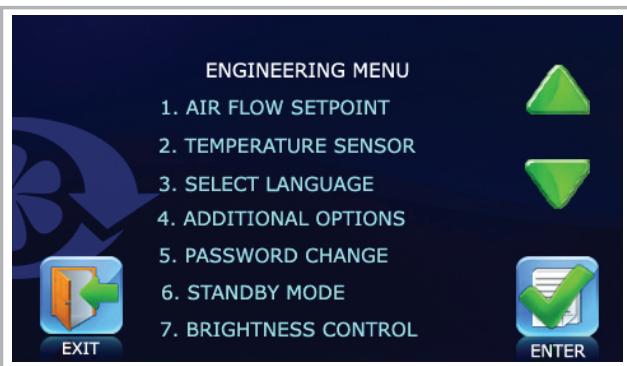


Fig. 16. Engineering menu

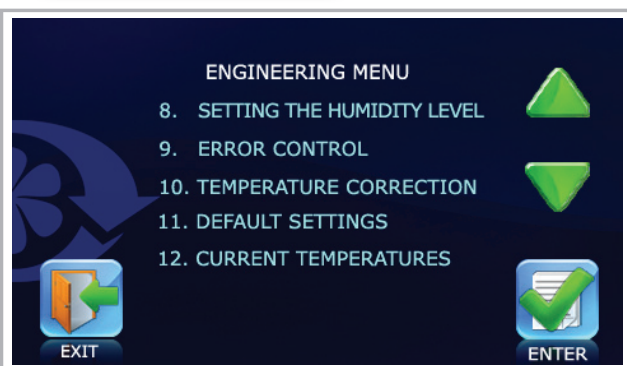


Fig. 17. Engineering menu

7. Air flow setting by speeds.

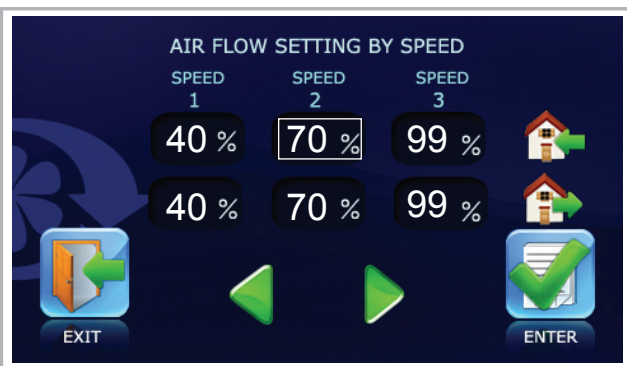


Fig. 18. Air flow setting by speeds

8. Temperature sensor.

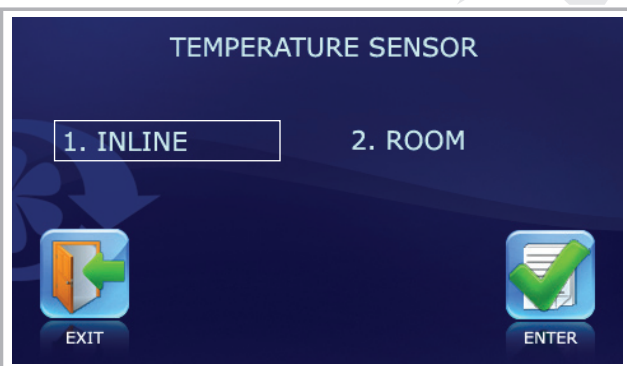


Fig. 19. Temperature sensor selection

To navigate through the engineering menu use the following buttons (fig. 16, 17):



- move one level up in a list;



- move one level down in a list;



- select a value from the parameter list;



- return to the user menu.

Find the item «**AIR FLOW SETPOINT**» in the engineering menu and press the button **ENTER** (fig. 16).

Select a required parameter you want to change and press a respective window. An editable parameter is enclosed in a rectangle.

Set air flow for each fan speed with the buttons and (fig. 18).

Air flow is set in % of the fan maximum air capacity.

Press **ENTER** button to save set points.

To return to the engineering menu without entering changes, press the button **EXIT**.

To select a heat control sensor select the item **TEMPERATURE SENSOR** in the engineering menu and press the button **ENTER** (fig. 16).

Select a required sensor type by pressing a respective symbol (fig. 19).

Press the button **ENTER**.

To return to the engineering menu without entering changes press the button **EXIT**.

9. Language selection.

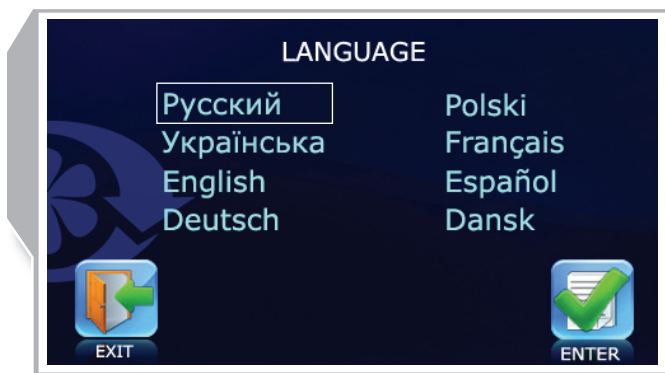


Fig. 20. Language selection

- To select a language for the remote controller select the item **LANGUAGE SELECTION** in the engineering menu and press

the button **ENTER**  (fig. 16).

- Select the required language from the list (fig. 20).

- Press the button **ENTER** .

- To return to the engineering menu without entering

changes press the button **EXIT** .

10. Extra options.

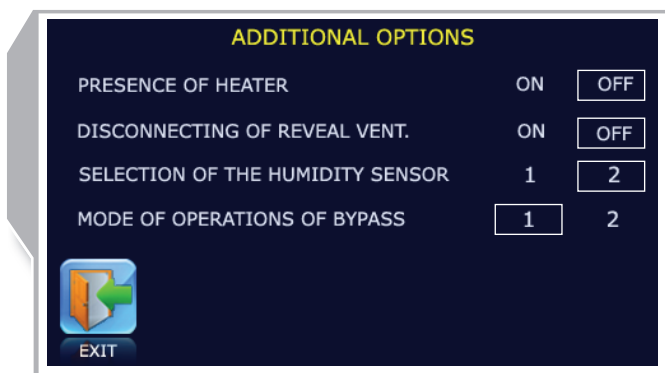


Fig. 21. Extra functions

- Select the item **EXTRA OPTIONS** in the engineering

menu list and press the button **ENTER**  (fig. 16).

- To activate or deactivate the electric heater, press **ON** or **OFF** button in the **HEATING CONTROL** menu (fig. 21).

- To select the freezing protection logic that is activated by turning the supply fan off, press **ON** in **SUPPLY FAN DEACTIVATION** menu item. The freezing protection function is not compatible with the **HEATING CONTROL** function. If you select **ON** option, you get to the function settings (fig. 22).

- To select the humidity sensor type for humidity-based control, press 1 for the duct humidity sensor or 2 for the room sensor in **HUMIDITY SENSOR SELECTION** menu item. To set the humidity control value, go to **HUMIDITY SETPOINT** item (refer item 14, page 13).

- To select the bypass operation mode, type press 1 for normal operation mode aimed to prevent the heat exchanger freezing or 2 for the ventilation mode effected by the bypass opening in **BYPASS OPERATION MODE** menu item.

- To return to the engineering menu and save changes, press the button .



Fig. 22. Supply fan deactivation

- If you select **ON** in **SUPPLY FAN DEACTIVATION** item, you get to the settings of the supply fan deactivation mode (fig. 22).

- Select one of the items: **OPERATION TIME**, **STANDBY TIME** and **SHUTDOWN TEMPERATURE** (adjustable from 0°C up to -30°C) by pressing a respective field.

- Set a required set point with the buttons  and .

- Press the button **ENTER**  to confirm the set parameters.

- To return to the engineering menu without entering

changes press the button **EXIT** .

11. Password change.

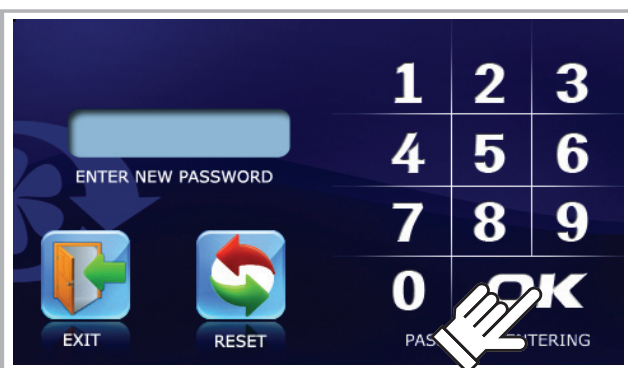


Fig. 23. Password change

12. Standby mode adjustment.

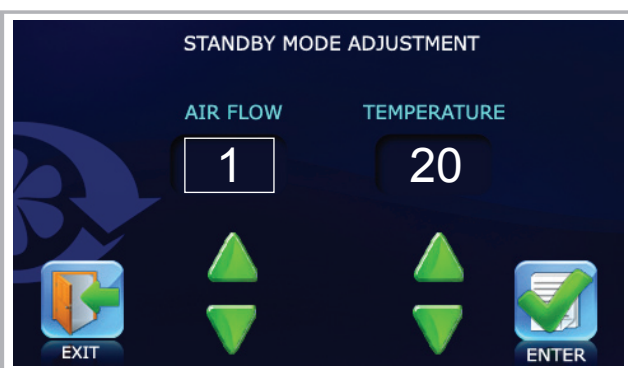


Fig. 24. Standby mode adjustment

13. Display brightness control.



Fig. 25. Display brightness adjustment

14. Humidity setting.

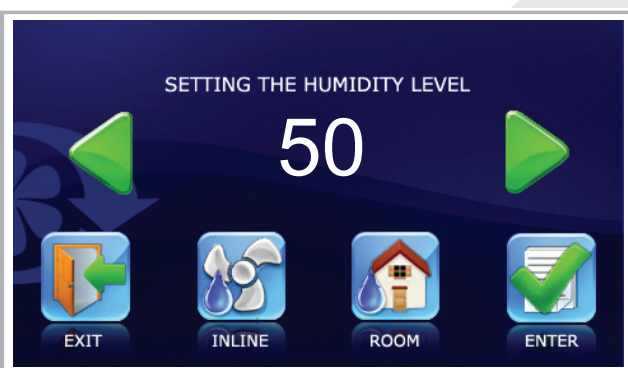


Fig. 26. Humidity setting

- Select the item **PASSWORD CHANGE** in the engineering menu list and press the button **ENTER** (fig. 16).

Then press a new password to enter the engineering menu.

- Press **OK** (fig. 23).

To correct the password, press the button **RESET**. To clear the field **ENTER PASSWORD**, press the button **RESET**.

- To return to the engineering menu press the button

EXIT.

- Select the item **STANDBY MODE** in the engineering menu list and press the button (fig. 16).

Set the mode type and the temperature with the buttons and . Press 0 to turn the unit off or 1 to activate Standby operation mode and low speed operation.

- Press the button **ENTER** (fig. 24).

To return to the engineering menu without entering changes, press the button **EXIT**.

- Select the item **BRIGHTNESS CONTROL** in the engineering menu list and press the button **ENTER** (fig. 16).

Set the brightness for operating and hibernation mode. The remote controller is switched to the standby mode 30 seconds after the last pressing.

- Press the button **ENTER** (fig. 25).

To return to the engineering menu without entering changes press the button **EXIT**.

- Select the humidity sensor type for humidity control. Press **DUCT** to select the duct humidity sensor (option, not included into the basic delivery set) or **ROOM** to select the room humidity sensor (fig. 26).

Set the humidity set point with the buttons and

- Press the button **ENTER** (fig. 26).

To return to the engineering menu without entering changes press the button **EXIT**.

15. Error control.

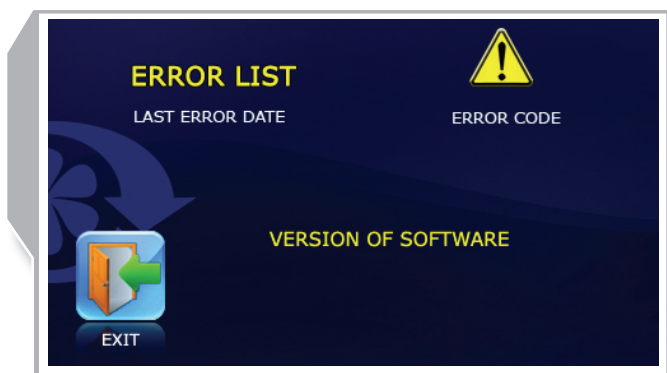


Fig. 27. Error control

16. Correction of the remote controller temperature sensor.

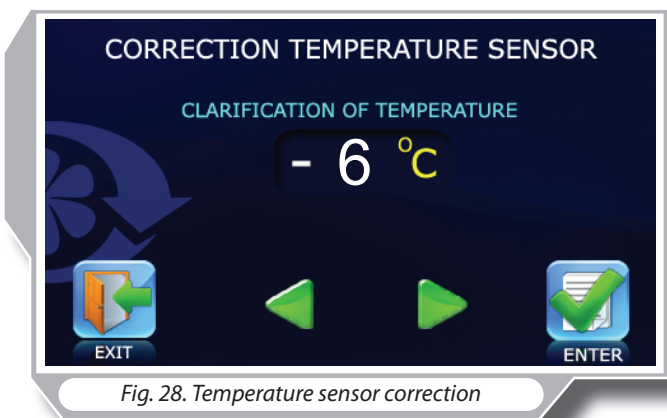


Fig. 28. Temperature sensor correction

17. Default settings.

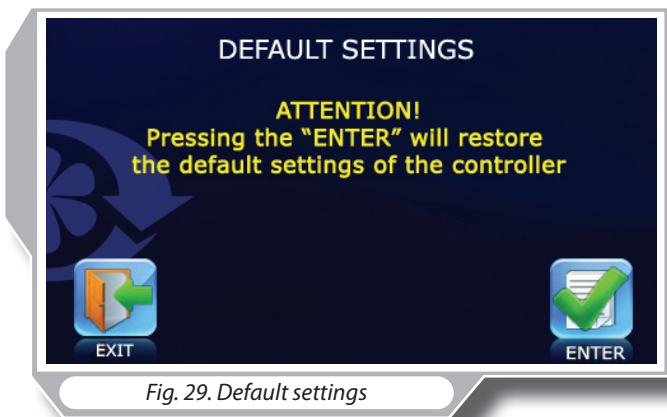


Fig. 29. Default settings

18. Current temperature review.

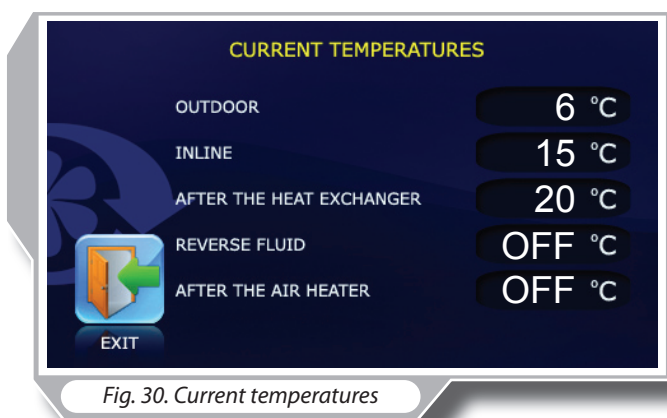


Fig. 30. Current temperatures

- For information regarding the last error, select the item **ERROR CONTROL** in the engineering menu list and press the

button **ENTER**  (fig. 17).

- An error date and code will be displayed (fig. 27).
- To return to the engineering menu, press the button

EXIT .

- The errors are described in table 3.

- To correct the readings of the remote controller temperature sensor, select the item **TEMPERATURE CORRECTION** in the engineering menu list and press the button

ENTER  (fig. 17).

- Set the temperature correction for the room temperature sensor located inside of the remote controller casing

with the buttons  and  (fig. 28).

- The factory setting for the temperature sensor correction is -6°C.

■ To return to the engineering menu without entering changes press the button **EXIT** .

- To revert the default controller settings, select the item **DEFAULT SETTINGS** in the engineering menu and press the

button **ENTER**  (fig. 17).

- To confirm **RESET**, press the button **ENTER**  (fig. 29).
- To return to the engineering menu without entering

changes press the button **EXIT** .

- The default settings are shown in table 4, page 17.

- To review current temperatures, select item **CURRENT TEMPERATURES** and press the button **ENTER**  (fig. 17).

■ The display will show full current temperature details (fig. 30). The return heat medium temperature and air temperature at outlet from the heater are not displayed as those are not applicable for the unit with a water heater.

■ To return to the engineering menu press the button **EXIT** .

19. AUTO mode (scheduled operation).

AUTO mode is designed to set scheduled operation of the unit. The unit will operate at set speed and set regulated temperatures in set time periods.

- To activate **AUTO** mode press the button **AUTO**  in the main menu (fig. 6) of the remote controller (fig. 31). After activation of **AUTO** mode the button is checked - .

- To adjust **AUTO** mode enter user menu by pressing the button  (item 5) and press the button **ADJUST. AUTO**  (fig. 32).

- If **TIMER** mode is activated, **AUTO** mode may not be activated as it has lower priority.



Fig. 31. AUTO mode activation

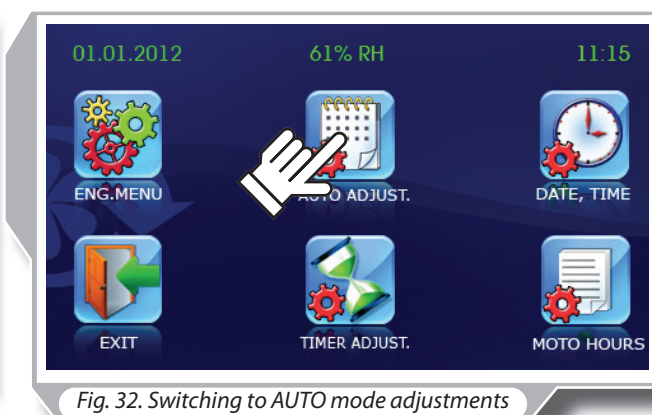


Fig. 32. Switching to AUTO mode adjustments

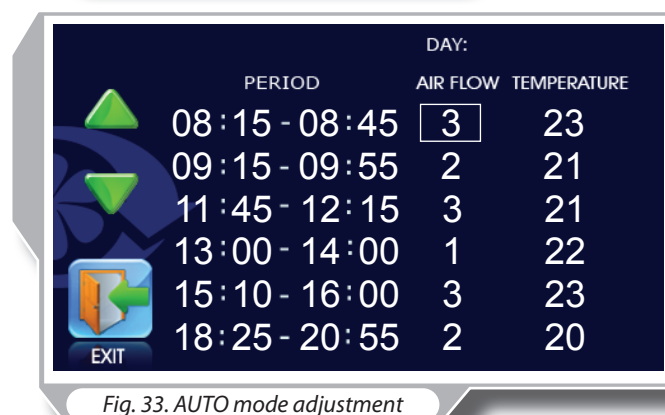


Fig. 33. AUTO mode adjustment

- Then set time, air flow and temperature with the buttons  and  (fig. 33).

- To revert to the engineering menu and save entered parameters, press the button **EXIT**  (fig. 33).

20. Timer



Fig. 34. Timer activation

- Press the button **TIMER**  in the main menu (fig. 6) of the remote controller to activate the timer (fig. 34).

- To adjust the timer, enter the user menu by pressing the button  (refer item 5) and press the button **ADJUST. TIMER**  (fig. 35).

- After the **TIMER** function is activated, the button is checked - .

- The **TIMER** function has higher priority as compared to **AUTO** mode.



Fig. 35. Transfer to timer adjustments

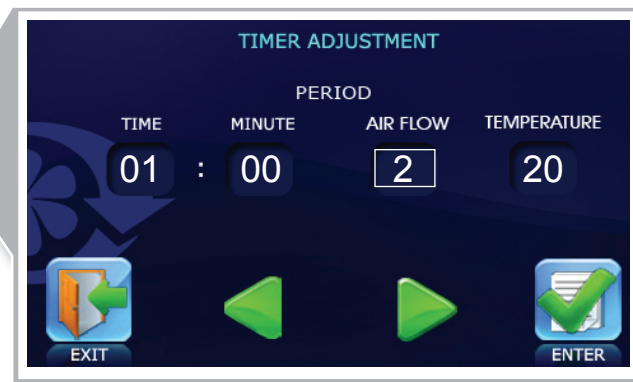


Fig. 36. Timer adjustments

- Press the buttons and to set time, air flow and air temperature (fig. 36).
- Press the button **ENTER** to confirm the set parameters.
- To return to the engineering menu without entering changes press the button **EXIT** .

21. Motor hours.

The function **MOTOR HOURS** is designed to set time period for the filter replacement or cleaning. After expiration of the set period the remote controller reminds to replace or clean the filters (fig. 39).



Fig. 37. Transfer to motor hours adjustments

- To adjust the **MOTOR HOURS** function, enter the user menu by pressing the button (refer item 5) and press the button **MOTOR HOURS** (fig. 37).



Fig. 38. Motor hours

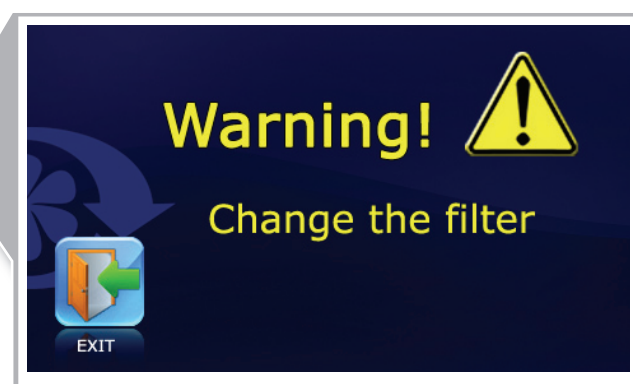


Fig. 39. Warning

- Press the buttons and to set the time period for the filter replacement (fig. 38).
- The window **ENGINE HOURS** displays the time period from the filter installation.
- To reset the engine hours, press the button **ENTER** .
- To return to the engineering menu and save changes, press the button **ENTER** .

22. Errors.

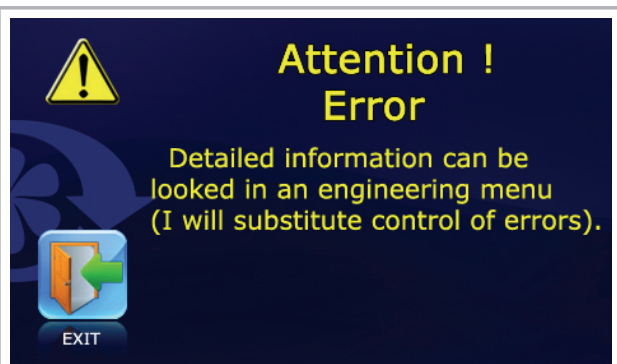


Fig. 40. Error message

■ In case of any operation errors the remote controller will display the error message (fig. 40).



■ Press the button **ENTER** to get to the **ERROR LIST**.

■ Access to the **ERROR LIST** is also possible from the engineering menu (refer item 15).

■ The errors are described in table 3.

■ An error message appears each 30 seconds until a system alarm is removed.

Table 3

ERROR CODE	DESCRIPTION
TE1	Failure of intake air temperature sensor.
TE2	Failure of temperature sensor at outlet from the heat exchanger.
TE5	Failure of duct temperature sensor.
TE6	Failure of duct humidity sensor.
MIN	Failure of supply fan.
MEX	Failure of extract fan.
ERP	Connection error with a remote controller.
DI1	Electric heating element overheating (TK50).
DI2	Fire alarm sensor is activated.

Table 4

Parameter		By default	Measuring unit
Air flow		1	-
Temperature	Duct	25	°C
	Room	20	
Air flow setting by speeds	Air supply	1 speed 40 %, 2 speed 70 %, 3 speed 99 %	%
	Air extract	1 speed 40 %, 2 speed 70 %, 3 speed 99 %	
Temperature sensor		Duct	-
Extra options	Heating control	On	On/Off
	Supply fan deactivation	Off	On/Off
	Humidity sensor selection	2	-
	ByPass operation mode	1	-
Supply fan deactivation mode	Operation time	5	Minutes
	Standby time	5	Minutes
	Shutdown temperature	-1	°C
Standby mode adjustment	Air flow	1	-
	Temperature	20	°C
Display brightness adjustment	Operating	50	-
	Hibernation	1	-
Humidity setting	Duct	50	%
	Room	50	%
Temperature sensor correction		-6	°C
Timer adjustment	Hours	01	Hour
	Minutes	00	Minute
	Air flow	1	-
	Temperature	20	°C
Motor hours	Installation	4000	Hour

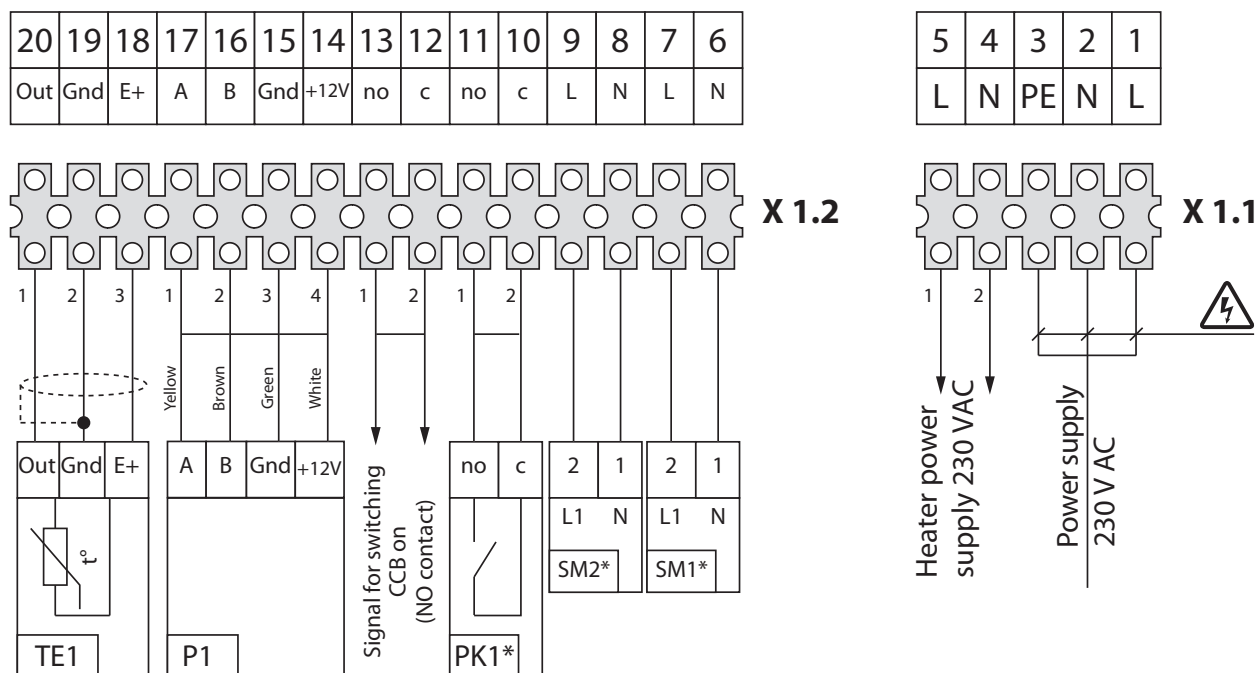


DISCONNECT THE UNIT FROM POWER MAINS PRIOR TO ANY OPERATIONS WITH IT. CONNECT THE UNIT TO A PROPERLY INSTALLED AND EARTHED SOCKET. THE RATED ELECTRIC PARAMETERS OF THE UNIT ARE SHOWN ON THE RATING PLATE. ANY INTERNAL CONNECTION MODIFICATIONS ARE NOT ALLOWED AND VOID WARRANTY.

The unit is rated for connection to single-phase ac 230 V / 50 Hz power mains. Connect the unit to power mains through a pre-wired power cable with Euro Plug.

Connect the unit to power mains through the external automatic thermal-magnetic circuit breaker integrated into the fixed wiring system. The circuit breaker rated current must be not less that the unit current consumption (refer table 2).

External wiring diagram is shown in fig. 41.



— ELECTRIC SHOCK HAZARD!

* — does not included into delivery set (only upon special order)

Design.	Name
TE1	Outer air temperature sensor
P1	Control panel
PK1*	Contact from fire alarm panel
SM1*	Supply air damper actuator (LF230)
SM2*	Extract air damper actuator (LF230)

Fig. 41. External connection diagram



**DO NOT LAY THE POWER CABLE OF THE UNIT IN CLOSE PROXIMITY AND PARALLEL TO THE CONTROL PANEL CABLE!
DO NOT COIL THE CONTROL PANEL CABLE WHILE LAYING ITS OUT.**

Recommended cross section of the connecting cable from the controller to the control panel

Cable cross section	$\geq 0,12 \text{ mm}^2$	$\geq 0,25 \text{ mm}^2$
Cable length	max. 15 m	max. 50 m

Recommended minimum control panel voltage is 11 V.

TECHNICAL MAINTENANCE

The unit requires maintenance works 3-4 times per year. Maintenance includes regular cleaning and the following operations:

1. Filter maintenance (3-4 times per year).

Dirty filters increase air resistance in the system and reduce supply air volume. The filters require cleaning once in 3-4 months. Clean the filters with a vacuum cleaner or replace with a new filter. Contact your local manufacturer representative for new filters.

2. Heat exchanger inspection (once per year).

Some dust can get accumulated on the heat exchanger block even in case of regular maintenance of the filters. To maintain the high heat exchange efficiency, regular cleaning is required. To clean the heat exchanger pull it out of the unit and flush it with warm soap or mild detergent water solution. Re-install the dry heat exchanger to the unit.

To remove the filters and the heat exchanger, follow the procedures shown in fig. 42.

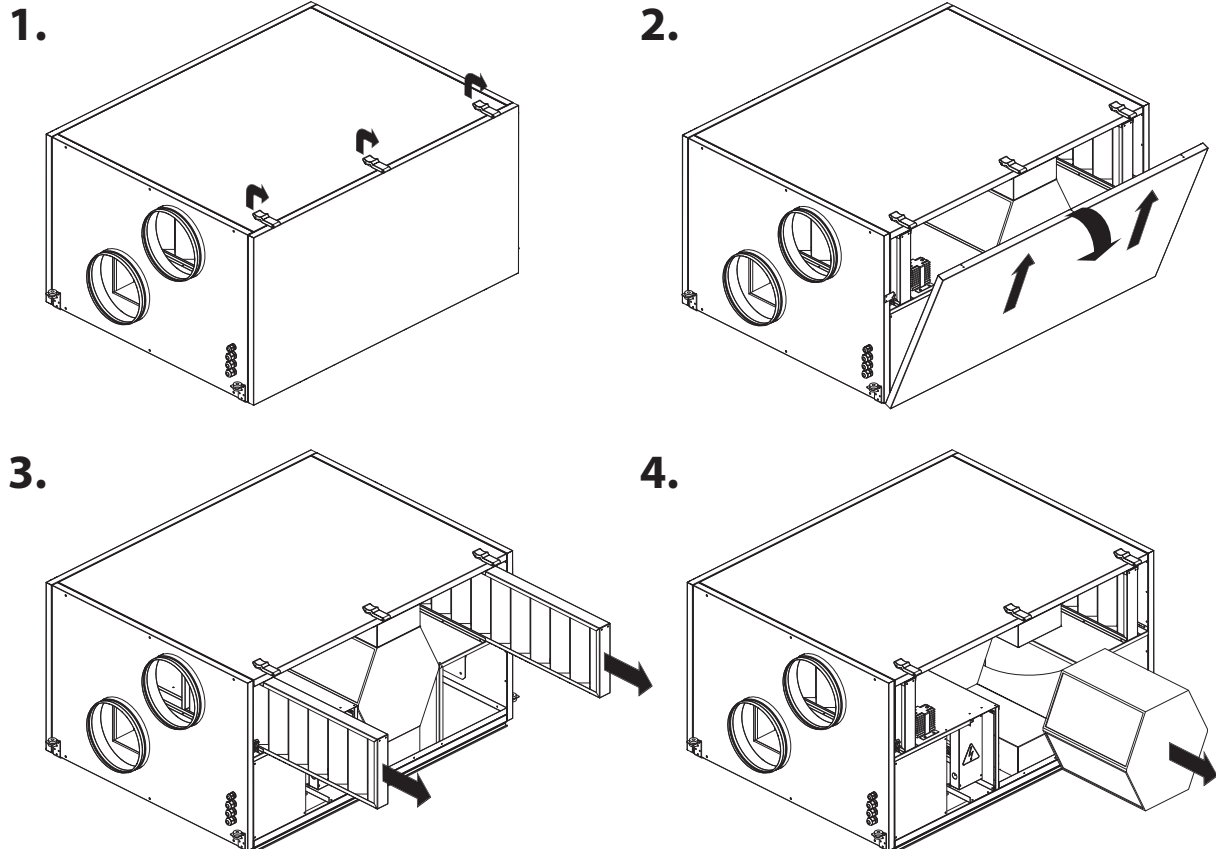


Fig. 42. Removal of the filters and the heat exchanger

3. Fan inspection (once per year).

Even in case of regular filter maintenance, some dust and grease can get accumulated inside the fans and reduce the fan performance and supply air flow.

Clean the fans with a soft brush or cloth. No water and abrasive detergent, sharp objects or solvents are allowed for cleaning to prevent the impeller damage.

4. Condensate drainage (once per year).

The drain pipes may get clogged with extracted particles. Pour some water inside the drain pan and check the pipe for clogging. Clean the U-trap and drain pipe if required.

5. Supply air flow control (twice per year).

Leaves and other pollutions can clog the supply air grille and reduce the unit performance and supply air volume. Check the supply grille twice per year and clean it as required.

6. Ductworks inspection (once in 5 years).

Even if you follow all the listed maintenance guidelines, some dust can get accumulated inside the air ducts and reduce the unit performance. Duct maintenance means regular cleaning or replacements.

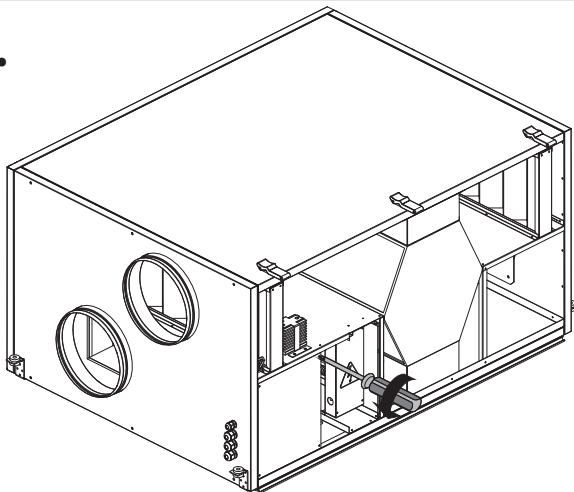
7. Control unit maintenance (as required).

Maintenance of the control unit must be performed by a qualified electrician duly authorized for unassisted electric operations up to 1000 V. Read the user's manual prior to the control unit servicing!

While servicing the control unit follow the operations shown in fig. 43:

1. Remove screws.
2. Remove the protective cover.

1.



2.

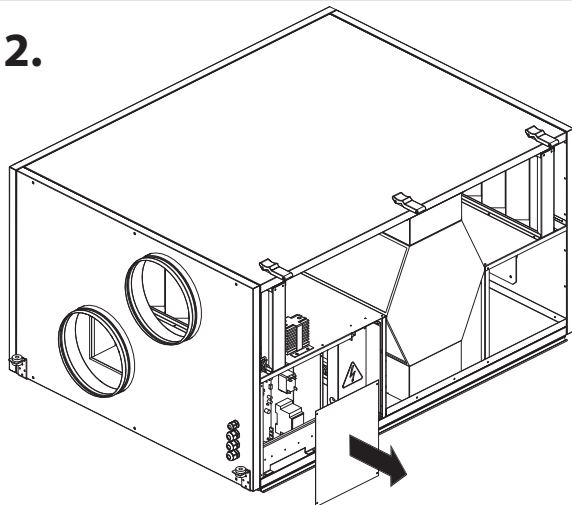
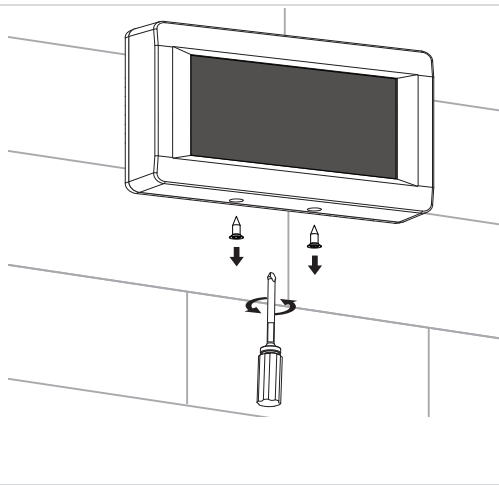


Fig. 43. Servicing of the control unit

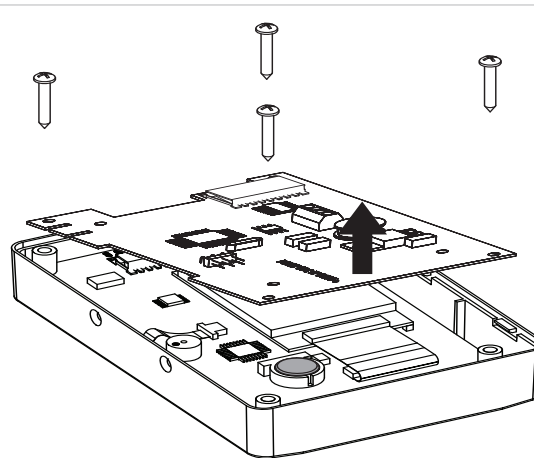
8. Battery replacement in the control panel (as required).

1. Disconnect the unit from power supply and remove two screws in the casing bottom.
2. Open the control panel upper casing part to enable free access to the upper circuit board.
3. Remove four screws located in the upper circuit board corners and pull it toward the connecting stub cable to enable free access to the battery on the lower circuit board.
4. Replace the battery. The control panel has CR1220 lithium cell.
5. Re-assemble the control panel in the reverse order. If the terminal block wires on the control panel upper circuit board were disconnected ensure their proper connection.
6. Connect the unit to power supply and set date and time on the control panel.

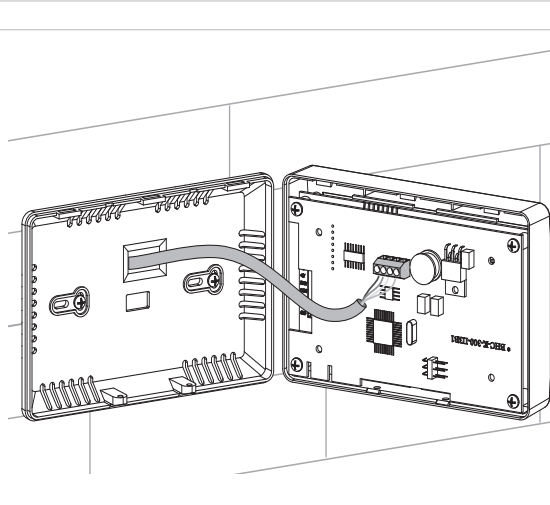
1.



3.



2.



4.

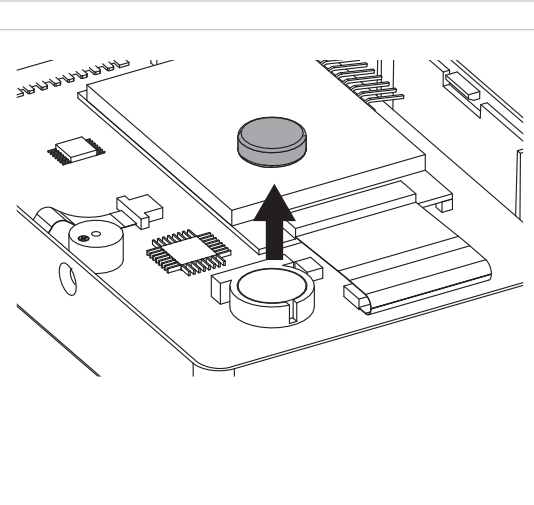


Fig. 44. Battery replacement.

FAULT HANDLING

POSSIBLE FAULTS AND FAULT HANDLING		
Problem	Possible reasons	Fault handling
The fans do not get started, the display shows the failure message (fig. 40)	System alarm (the system errors are described in table 3).	Go to the error list page (fig. 27) and define the system error code. After the alarm removal restart the system by turning power supply off for 10-20 seconds.
Automatic circuit breaker tripping at start	High current consumption due to short circuit in power line results in automatic circuit breaker triggering.	Turn the unit off. Remove high power consumption reason. Check the automatic circuit breaker operation. Turn the circuit breaker off-on. Restart the unit.
Low air flow	Low set air flow.	Switch the unit to higher air flow.
	The filters, the fans are soiled, the heat exchanger is soiled.	Clean or replace the filters; clean the fans and the heat exchanger.
	The ventilation system components (air ducts, diffusers, louvre shutters, grilles) are soiled or damaged.	Clean or replace the ventilation system components (air ducts, diffusers, louvre shutters, grilles).
	The air dampers, diffusers or louvre shutters are closed.	Make sure that the air dampers, diffusers or louvre shutters are fully opened.
Cold supply air.	The extract filter is soiled.	Clean or replace the extract filter.
	The electric heater fails.	Contact the service centre for the unit repair.
High noise, vibration.	The impeller(s) is(are) soiled.	Clean the impeller(s).
	Loose screw tightening.	Tighten the screws to stop.
	No anti-vibration mounts.	Install the rubber anti-vibration mounts (not included into the delivery set).



STORAGE AND TRANSPORTATION RULES

Store the unit in the manufacturer's original packing box in a closed ventilated premise with temperature range from +10°C to +40°C and relative humidity less than 80% (at +20°C).

Vapours or particles which can cause corrosion or damage the insulation or connection tightness are not allowed in the storage environment.

Use hoist machinery for handling and transportation to prevent possible mechanical damages of the unit. Fulfill the requirements for transportation of the specified cargo type during cargo-handling operations.

Use any vehicle types for the unit transportation provided that it is protected against mechanical or weather damage.

Avoid any mechanical shocks and strokes during handling operations.

MANUFACTURER'S WARRANTY

Manufacturer hereby guarantees normal performance of the unit during two years from the date of retail sale provided compliance with transport, storage, mounting and operation regulations. In case of no confirmation of the sales date the warranty period is calculated from the manufacturing date.

In case of failures in the unit operation during the warranty period the manufacturer will accept reclamations and complaints from the owner of the device only after receiving technically sound act with detailed description of the failure. Unit damage as a result of unauthorized tampering with the circuit diagram is not a warranty case.

For warranty and post-warranty services of the unit please contact the product manufacturer. In case of warranty claim please submit the present user's manual with the seller's stamp, filled connection certificate and warranty card. Warranty repair services (provided that the warranty card and the seller's stamp and the present user's manual) and post-warranty services are fulfilled at the manufacturing facility.



WARRANTY CLAIMS ARE ACCEPTED WITH THIS USER'S MANUAL AND FILLED CONNECTION CERTIFICATE ONLY.



THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY MECHANICAL OR PHYSICAL DAMAGES RESULTING FROM THE MANUAL REQUIREMENTS VIOLENCE, THE UNIT MISUSE OR GROSS MECHANICAL EFFECT.

FULFILL THE REQUIREMENTS SET IN THE USER'S MANUAL TO ENSURE PROPER FUNCTIONING OF THE UNIT.

ACCEPTANCE CERTIFICATE**THE AIR HANDLING UNIT WITH HEAT RECOVERY VUT _____ EH EC ECO**

has been duly certified as serviceable.

We hereby declare that the product complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

This certificate is issued following test carried out on samples of the product referred to above.

Acceptance Inspector's Stamp _____

Date of manufacture _____

Sold by

Name of trade company, retailer's stamp _____

Date of sale _____

ELECTRICAL CONNECTION CERTIFICATE

This is to certify that the air handling unit VUT EH EC ECO has been connected to power mains pursuant to the requirements stated in the present user's manual by a qualified technician:

Company: _____

Name _____

Date _____ Signature _____

WARRANTY CARD



